

WHAT IS CLAIMED IS:

1. A multiplexer comprising:

a first filter that passes a signal in a first frequency band and attenuates a signal in a second and a third frequency bands;

a second filter that passes a signal in the second frequency band and attenuates a signal in the first and third frequency bands; and

a third filter that passes a signal in the third frequency band and attenuates a signal in the first and second frequency bands; wherein

the first filter is a lowpass filter, the second filter is a bandpass filter, the third filter is a highpass filter, and one of two input/output ports of each of the first, second and third filters is connected together with a common port.

2. A multiplexer according to claim 1, further comprising a multilayer substrate, wherein at least one element of the first and third filters is disposed on a mounting surface of the multilayer substrate;

the remaining elements of the first and third filters are disposed on at least one interior layer of the multilayer substrate; and

the second filter includes a SAW filter disposed on the mounting surface of the multilayer substrate.

3. A multiplexer according to claim 2, wherein the multilayer substrate includes a plurality of ceramic layers.

4. A multiplexer according to claim 2, wherein the multilayer substrate is substantially rectangular.

5. A multiplexer according to claim 2, wherein signal input/output terminals are disposed on respective sides of the mounting surface of the multilayer substrate; and a ground terminal is disposed between each two adjacent signal input/output terminals.

6. A multiplexer according to claim 2, wherein the remaining elements disposed on at least one interior layer of the multilayer substrate are disposed on at least one interior layer other than an interior layer immediately below a layer provided with lands for connections with input/output terminals of the SAW filter.

7. A multiplexer according to claim 2, wherein a coil is disposed on an interior layer of the multilayer substrate; and if any other element of the multiplexer is disposed on an interior layer immediately adjacent to the interior layer on

which the coil is disposed, and the other element of the multiplexer is disposed at a location not close to the coil.

8. A multiplexer according to claim 1, further comprising a multilayer substrate, wherein all elements of the first and third filters are disposed on at least one interior layer of the multilayer substrate; and

the second filter includes a SAW filter disposed on a mounting surface of the multilayer substrate.

9. A multiplexer according to claim 8, wherein the multilayer substrate includes a plurality of ceramic layers.

10. A multiplexer according to claim 8, wherein the multilayer substrate is substantially rectangular.

11. A multiplexer according to claim 8, wherein signal input/output terminals are disposed on respective sides of the mounting surface of the multilayer substrate; and

a ground terminal is disposed between each two adjacent signal input/output terminals.

12. A multiplexer according to claim 8, wherein the remaining elements disposed on at least one interior layer of the multilayer substrate are disposed on at least one interior layer other than an interior layer immediately below a layer provided

with lands for connections with input/output terminals of the SAW filter.

13. A multiplexer according to claim 8, wherein a coil is disposed on an interior layer of the multilayer substrate; and

if any other element of the multiplexer is disposed on an interior layer immediately adjacent to the interior layer on which the coil is disposed, and the other element of the multiplexer is disposed at a location not close to the coil.

14. A multiplexer according to claim 1, wherein the second frequency band is a frequency band used in a system dedicated to receiving a signal.

15. A multiplexer according to claim 1, wherein the first filter includes an inductor connected in series with the common port.

16. A multiplexer according to claim 1, wherein each of the first filter and the third filter has an attenuation pole, the passband of the third filter is a 1900 MHz band, the passband of the second filter is a 1500 MHz band, the passband of the first filter is a 800 MHz band, the frequency of the attenuation pole of the third filter is close to the passband of the second filter, and the frequency of the attenuation pole of the first filter is

between the passband of the second filter and the passband of the third filter.